



**REGIONAL DISTRICT
of Fraser-Fort George**

REQUEST FOR PROPOSALS ES-08-08

Feasibility Study

Beneficial Use of Landfill Gas for Greenhouse Operations

ENGINEERING SERVICES



Regional District of Fraser-Fort George
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**REQUEST FOR PROPOSALS ES-08-08
BENEFICIAL USE OF LANDFILL GAS FOR GREENHOUSE OPERATIONS
ENGINEERING SERVICES**

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ENGINEERING SERVICES

1.0 INVITATION AND INSTRUCTIONS

The Regional District of Fraser-Fort George invites proposals for engineering services from qualified firms for conducting a detailed feasibility study on the beneficial use of landfill gas in support of greenhouse operations at Foothills Boulevard Regional Landfill. In a preliminary utilization study, the concept of a greenhouse operation using landfill gas as the energy source was proposed. The Regional District is now ready to advance the utilization of landfill gas and wants to explore further and understand the practicality of greenhouse operations.

This project is funded through the Federal Mountain Pine Beetle Community Economic Development Initiative and the Northern Development Initiative Trust. The project completion deadline is October 3, 2008.

Five complete copies of your proposal must be submitted in a sealed package labeled “**RFP ES-08-08 Beneficial Use of Landfill Gas for Greenhouse Operations**” to Ms. Diane Hiscock, General Manager of Financial Services, by 10:00 a.m. local time, Monday, July 7, 2008. The proponent’s name and return address must be clearly marked on the outside of your proposal submission package. Late proposals will not be accepted and will be returned, unopened, to the proponent. **Facsimile proposals will not be accepted.**

Proposals must be sent to:

Ms. Diane Hiscock
General Manager of Financial Services
Regional District of Fraser-Fort George
155 George Street
Prince George BC V2L 1P8

All questions relating to this project must be directed to the Project Manager:

Mrs. Petra Wildauer, General Manager of Environmental Services
Regional District of Fraser-Fort George
155 George Street
Prince George BC V2L 1P8
Telephone: (250) 960-4483
Fax: (250) 562-8676
Email: pwildauer@rdffg.bc.ca

The Regional District reserves the right to waive informalities in proposals, reject any or all proposals or accept the proposal deemed most favourable in the interests of the Regional District. Furthermore, the Regional District reserves the right to negotiate with any proponent at its discretion. The proponents will be competent and capable of performing the work. The proponent may be required to provide evidence of previous experience and financial responsibility before a contract is awarded.

The Regional District will not be responsible for any costs incurred by proponents, which result from the preparation or submission of documents pertaining to this proposed call. The accuracy and completeness of the proposal is the proponent's responsibility. Should errors be discovered, they will be corrected by the proponent at his expense.

RFP documents may be obtained on or after June 18, 2008.

- a) In a PDF (public document format) file format from the Regional District's website www.rdffg.bc.ca.
- b) In hard copy from the Regional District Service Centre, 155 George Street, Prince George, BC. The office is open 8:00 a.m. to 5:00 p.m. Monday through Friday excluding statutory holidays.
- c) The cost for each hard copy Request for Proposal package is ten dollars (\$10) (GST included) and is non-refundable.

2.0 ACKNOWLEDGEMENT LETTER

Upon receipt of these documents, a potential proponent will sign one copy of the Acknowledgement Letter and mail or fax the signed Acknowledgement Letter to the attention of Mrs. Petra Wildauer, Regional District of Fraser-Fort George.

A proponent who signs and returns the Acknowledgement Letter is not obligated to submit a Proposal.

Any proponent who does not submit the Acknowledgement Letter will not be sent any amendments or addenda and may be disqualified.

3.0 INTRODUCTION AND BACKGROUND

3.1 Overview

The Regional District of Fraser-Fort George (Regional District) operates and owns the Foothills Boulevard Regional Landfill (the Site), a municipal solid waste landfill, located at 6595 Foothills Boulevard, Prince George, B.C., Canada.

This facility serves a population of approximately 94,000 and receives 94% of the regional solid waste stream. The landfill operates seven days per week to provide waste disposal, centralized composting, materials exchange, compost sales and recycling services. The site has been in operation since 1974 and the current fill area is expected to receive waste for 13 more years.

In 2002, the Regional District installed on a voluntary basis a landfill gas collection system over a 5-hectare area in concert with a progressive closure project. The main purposes for the installation of the landfill gas collection system were to reduce greenhouse gas emissions and to create an opportunity for the beneficial use of landfill gas.

Additional information regarding the landfill operation and the landfill gas collection system can be found in the attached appendices.

3.2 Beneficial Use of Landfill Gas

A Landfill Gas Utilization study was completed for the site by Sperling Hansen Associates in 2002 which provided seven options concerning the beneficial use of landfill gas. Each of

the options identified was based on a reasonable assumptions of landfill gas supply consistency, quantity and quality for the period of 2002 through 2042. Landfill gas quantities are anticipated to increase up to this time and then gradually decline over subsequent decades. Landfill gas production rates are estimated to be in the order of 947 to 1161 cubic feet per minute.

One of the most compelling beneficial use options presented was the utilization of landfill gas to support the operation of a greenhouse facility at the site which could be producing locally consumable products. Sperling Hansen Associates concluded in the study that the development of a greenhouse adjacent to the landfill operation, to utilize the available landfill gas, was a viable option in that the technology was proven. The annual heating demand, although impacted by seasonal variations, would be sufficiently high to warrant the project, and both the Regional District and an operator of the greenhouse complex could stand to profit from the project. The study provides additional information supporting greenhouse operations.

This utilization option is appealing from a community sustainability perspective in that it is thought that it can benefit local sustainability objectives in economic diversification, social and cultural well being, healthy ecosystems and local government leadership.

3.3 Current System Operations

The landfill gas collection system at the site has now been operational since January 2003. Through this operating period, Regional District staff have had an opportunity to familiarize themselves with the nuances of operating the system and experience operating problems. implementation of system improvements resulted in improved system reliability. Automated data collection has also been ongoing since commissioning of the system.

Current eCO₂ emission reductions through combustion of the landfill gas are in the order of 13,800 tonnes annually.

4.0 PURPOSE

In a preliminary utilization study, the concept of a greenhouse operation using landfill gas as the energy source was proposed as one of seven beneficial use options. The Regional District is now ready to advance the utilization of landfill gas and wants to explore further and understand the practicality of greenhouse operations. The Regional District intends to engage a qualified consulting engineering firm to prepare a Feasibility Study of beneficial use of landfill gas for greenhouse operations at Foothills Boulevard Regional Landfill. This study is a continuation of the Regional District's efforts to implement a sustainable and practical use of landfill gas generated at the Foothills Boulevard Regional Landfill.

The feasibility study is to include an evaluation of project economics, an assessment of financing options, a listing of required permits and approvals, identification of specific environmental performance benefits and identification of economic opportunities.

This project is funded through the Federal Mountain Pine Beetle Community Economic Development Initiative and the Northern Development Initiative Trust.

The completion date for this project is October 3, 2008.

5.0 SCOPE OF WORK

The successful proponent will provide a strategy and methodology to undertake a detailed analysis of the feasibility of utilizing landfill gas generated at the Foothills Boulevard Regional Landfill for the operation of a greenhouse facility.

As a guideline, we anticipate the proponent's proposal would include, but not be limited, to the following:

1. Evaluation of existing landfill gas collection and flaring system including:
 - infrastructure analysis of current equipment and systems,
 - evaluation of landfill gas production rates, quality and quantity in comparison to initial projections,
 - revised projections on future landfill gas production quality and quantity, and
 - landfill gas collection system expansion recommendations including conceptual design and expansion timelines.
2. Initial evaluation of the Sperling Hansen Associates greenhouse option for landfill gas utilization to determine the practicality of pursuing this particular option.
3. Provision of alternative utilization options meeting community sustainability parameters in the event the greenhouse option is not viable.
4. Evaluation of greenhouse, or recommended alternative, design and operating parameters for the Prince George climate including:
 - operation considerations,
 - product options,
 - a recommended conceptual design and site location/layout,
 - listing of permits, approvals and regulatory restrictions,
 - low-demand load beneficial use considerations, and
 - supplementary alternative energy source considerations such as geothermal to support the operation.
5. Evaluation of project economics including:
 - capital and operating cost analysis,
 - market analysis for recommended products/crops,
 - analysis of measurable economic benefits including job creation and sales revenue,
 - emission reduction credit and LFG energy valuation, and
 - assessment of financing options.
6. SWOT assessment of a greenhouse project or an agreed upon alternate project.
7. Examples of similar operations and a selection of potential development partners.
8. Development of a preliminary sales agreement of the landfill gas/greenhouse emissions reductions credits.

The Regional District will make the following documents available to the successful proponent:

- Design and Operations Plan, Foothills Boulevard Regional Landfill (AMEC Earth Tech & Environmental, 2006)
- Foothills Boulevard Regional Landfill Annual Report 2006 (RDFFG, 2007)
- Annual Report on GHG Emission Reductions 2004 and 2005 (Golder Assoc., 2008)
- Documentation Protocol GHG Emission Reductions (Golder Assoc., 2008)
- Landfill Gas Utilization Study (Sperling Hansen Assoc., 2002)
- Landfill Gas Management Project (Sperling Hansen Assoc., 2000)
- Waste Characterization Study – Foothills Boulevard Regional Landfill (Technology Resources Inc., 2007)
- Waste Characterization Study – Residential Automated Collection system (Technology Resources Inc., 2007)

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- Regional Solid Waste Management Plan (RDFFG, 1997)

The successful proponent will return these documents to the Regional District at the conclusion of the project.

6.0 CONTRACTOR INFORMATION

6.1 Qualifications and Experience

The successful Proponent will have at least three (3) years experience as a bona fide prime consultant in the business of solid waste management, landfill gas management, and landfill gas utilization planning for local government. Proponents will submit evidence of previous successful performance in comparable work.

Proponents will provide complete information on experience of key personnel to be involved in the feasibility study and references from work on similar projects.

Proponents may be required to submit evidence of their resources and their ability to carry out the work in their respective submissions.

This RFP encourages Proponents to demonstrate their experience, technical expertise and creativity in the area of landfill gas utilization.

6.2 Insurance

The proponent will be expected to have comprehensive general liability insurance in the amount of two millions dollars (\$2,000,000). The proponent will be required to comply with the *Workers' Compensation Act*.

6.3 Occupational Health and Safety

The proponent will be required to comply with the *Workers' Compensation Act*.

6.4 References

The proponent must include in the proposal a minimum of three (3) references complete with contact information for projects similar to the Beneficial Use of Landfill Gas for Greenhouse Operations Feasibility Study. A brief description of the projects completed for each reference should be provided.

6.5 Professional Responsibility

Only qualified and experienced engineering professionals will be considered for this project. The successful proponent will be expected to provide services in accordance with a standard care, skill and diligence maintained by a person (or firm) providing engineering services described herein. The successful proponent will be required to seal all documents issued for this project.

7.0 FEE STRUCTURE

The proponent must specify in the proposal, the fees required to satisfy the terms of reference for the project, the work plan and methodology. The proponent must clearly identify and detail all costs separately. As well, the various stages of the work plan shall be costed, with taxes and disbursements clearly identified. The fee structure shall be based on milestones and deliverables to the Regional District over the duration of the contract period.

7.1 Terms of Payment

The proponent must specify in the proposal the terms of payment required for the duration of the project.

7.2 Cost of Control

The proponent must provide in the proposal a description of the cost control measures he will employ to effectively manage the project budget.

8.0 WORK PLAN AND SCHEDULE

The proponent must provide a work plan in the proposal. The work plan is to include a schedule of project tasks, milestones, the sequence of task occurrence, and details concerning implementation and completion dates for each task.

The completion date for this project is October 3, 2008.

9.0 PROPOSAL FORMAT

Proponents are asked to respond in a similar manner. The following format and sequence should be followed in order to provide consistency in proponent response and to ensure each proposal receives full and complete consideration. All pages should be numbered consecutively.

- a) Title Page – including Request for Proposal title and number, proponent's name and address, telephone number, fax number, email address and contract representative.
- b) Letter of Introduction – one page, signed by the person or persons authorized to sign on behalf of the proponent which will bind the proponent to statements made in the proposal.
- c) Table of Contents - including page numbers.
- d) Executive Summary – detailing the key features of the proposal.
- e) Body of the Proposal – including pricing, i.e. the "Proponent's Response".
- f) Additional Information – as the proponent chooses to provide.

10.0 DOCUMENTS

The successful proponent will be required to provide all documents related to the project to the Regional District in hard copy and an electronic format. All design drawings will be in an AutoCAD 2002 or higher format. All text documents will be in a Microsoft Word format.

11.0 PROJECT MANAGER

All questions concerning RFP ES-08-08 are to be directed to the Project Manager after June 18, 2008.

Petra Wildauer, General Manager of Environmental Services
Regional District of Fraser-Fort George
155 George Street
Prince George BC V2L 1P8
Telephone: (250) 960-4483
Fax: (250) 562-8676

12.0 EVALUATION OF PROPOSALS

The contract award will be based on the professional qualifications, experience, local knowledge, work plan methodology and schedule, price and quality of proposal. The proposal submission should be clear, concise and complete.

The Regional District shall be the sole judge of a proposal and its decision shall be final.

12.1 Evaluation Criteria:

| | |
|---|------------------|
| Consultant Qualification and Experience | 25 points |
| Work Plan, Methodology, and Schedule | 25 points |
| Price | 25 points |
| Quality of Proposal including format | <u>15 points</u> |
| Total | 100 points |

13.0 OWNERSHIP OF PROPOSALS AND FREEDOM OF INFORMATION

Proposals will be received and held in confidence by the Regional District subject to the provisions of the *Freedom of Information and Protection of Privacy Act*.

All documents, including proposals, submitted to the Regional District become the property of the Regional District. The Regional District will provide a debriefing for individual proponents at their request subject to the *Freedom of Information and Protection of Privacy Act*.

APPENDICES

The following figures are attached for reference only:

- Figure 1 – Foothills Boulevard Regional Landfill – Site Location Plan
- Figure 2 – Foothills Boulevard Regional Landfill – General Site Plan
- Figure 3 – Foothills Boulevard Regional Landfill – Pollution Control Infrastructure
- Figure 4 – Foothills Boulevard Regional Landfill – Existing LFG Collection System
- Figure 5 – Theoretical Landfill Gas Production Rates for Foothills Boulevard Regional Landfill



ACKNOWLEDGEMENT LETTER

The undersigned has received the RFP Document.

Signature

Company

Name (please print)

Address

Title

City

Phone Number

Fax Number

Date

We presently intend to _____ provide or _____ not provide a Request for Proposal.

Return immediately to:

Petra Wildauer, General Manager of Environmental Services
Regional District Fraser-Fort George
155 George Street
Prince George BC V2L 1P8

Fax Number: (250) 562-8676